

It should be recognized that, while the present invention has been described in relation to the preferred embodiments thereof, those skilled in the art may develop a wide variation of structural details without departing from the principles of the invention. Therefore, the appended claims are to be construed to cover all equivalents falling within the true scope and spirit of the invention.

- a female sub connected to a first end of the pipe, the female sub including a conical sealing surface, an outer surface formed adjacent the conical sealing surface and external threads formed on the outer surface;
- a male sub connected to the distal end of the pipe, the male sub including a forward shoulder extending radially outwardly therefrom and a spherical sealing surface adjacent the forward shoulder which is adapted to mate with and seal against the conical sealing surface of another such pup joint;
- a nut having an internal surface, internal threads formed on the internal surface and a rearward shoulder extending radially inwardly from the internal surface;
- one or more retainer segments positioned between the rearward shoulder of the nut and the forward shoulder of the male sub for restricting axial movement of the nut relative to the male sub in a first direction;
- a retainer ring positioned in a corresponding groove formed in the retainer segments and having an outer diameter which is greater than the diameter of the rearward shoulder to thereby maintain the nut positioned around the retainer segments; and
- a retention shoulder extending radially outwardly from the male sub rearwardly of the forward shoulder, the retention shoulder comprising an outside diameter greater than the inside diameter of the retainer segments;

whereby the retention shoulder restricts axial movement of the nut and the retainer segments relative to the male sub in a direction opposite the first direction.

2. The pup joint of claim 1, wherein the male sub and the female sub are formed integral with the pipe.
3. The pup joint of claim 2, wherein the pipe, the male sub and the female sub are constructed of a single forging and the retention shoulder is machined into the male sub.

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